

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

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9. A capacitive-load driving circuit including a configuration in which a reference potential point is connected to an output terminal via a driving device,

comprising a power distributing circuit inserted between the reference potential point and the driving device.

10. The capacitive-load driving circuit as claimed in claim 9, wherein the power distributing circuit is a  
5 resistive element having an impedance whose value is not smaller than one-tenth of the value of a resistive component of the conducting impedance of the driving device.

11. The capacitive-load driving circuit as claimed  
10 in claim 10, wherein the power distributing circuit is a high-power resistor having a capability to handle power higher than the allowable power of the driving device.

12. The capacitive-load driving circuit as claimed  
15 in claim 9, wherein the power distributing circuit is a constant-current source.

13. The capacitive-load driving circuit as claimed in claim 9, wherein the driving power supply source outputs a plurality of different voltage levels in a selective manner.

14. The capacitive-load driving circuit as claimed  
20 in claim 13, wherein the power distributing circuit includes a plurality of power distributing units, one for each of the plurality of different voltage levels.

15. The capacitive-load driving circuit as claimed  
25 in claim 14, wherein each of the power distributing units has a function as a switch for selecting one of the plurality of different voltage levels.

16. The capacitive-load driving circuit as claimed  
30 in claim 9, wherein the driving device is a device whose input withstand voltage is higher than an output voltage.

17. A capacitive-load driving circuit including a configuration in which a plurality of driving devices for driving a plurality of capacitive loads are formed in integrated-circuit form, wherein each of the driving  
35 devices is connected to a driving power supply source or a reference potential point via a power distributing circuit.

18. The capacitive-load driving circuit as claimed in claim 17, further comprising a diode inserted between each of the capacitive loads and a corresponding one of the driving devices.

5        19. The capacitive-load driving circuit as claimed in claim 17, wherein each of the power distributing circuit is a resistive element having an impedance whose value is not smaller than one-tenth of the conducting impedance of the driving device divided by the number of  
10 driving devices connected to the power distributing circuit.

20. The capacitive-load driving circuit as claimed in claim 19, wherein each of the power distributing circuit is a high-power resistor having a capability to  
15 handle power higher than the allowable power of the driving device.

21. The capacitive-load driving circuit as claimed in claim 17, wherein each of the power distributing circuit is a constant-current source.

20        22. The capacitive-load driving circuit as claimed in claim 17, wherein the driving power supply source outputs a plurality of different voltage levels in a selective manner.

23. The capacitive-load driving circuit as claimed  
25 in claim 22, wherein the power distributing circuit includes a plurality of power distributing units, one for each of the plurality of different voltage levels.

24. The capacitive-load driving circuit as claimed  
30 in claim 23, wherein each of the power distributing units has a function as a switch for selecting one of the plurality of different voltage levels.

25. The capacitive-load driving circuit as claimed  
in claim 17, wherein the driving device is a device whose input withstand voltage is higher than an output voltage.

35        26. The capacitive-load driving circuit as claimed in claim 17, wherein a ground terminal of each of the integrated driving devices is connected to the driving

power supply source via the power distributing circuit.

27. The capacitive-load driving circuit as claimed in claim 17, wherein a ground terminal of each of the integrated driving devices is connected to the reference potential point via the power distributing circuit.

28. The capacitive-load driving circuit as claimed in claim 17, wherein a series connection of each of the power distributing circuit and a switch device is provided between each of the driving devices and the driving power supply source or the reference potential point.

29. The capacitive-load driving circuit as claimed in claim 17, wherein the capacitive-load driving circuit is constructed as a driving module containing a plurality of driving integrated circuits for driving the capacitive loads.

30. The capacitive-load driving circuit as claimed in claim 29, wherein each of the driving integrated circuits comprises a high-voltage output device whose input withstand voltage is increased up to a driving power supply voltage, and a flip-flop that drives a control input of the output device to a full-swing level either at the driving power supply voltage or at the reference potential.

31. The capacitive-load driving circuit as claimed in claim 29, wherein each of the driving integrated circuits includes a buffer driven by a logic voltage, and wherein an output of the buffer is connected to an input terminal of the each driving device, and the power distributing circuit to an inverting input terminal of the each driving device, thereby applying self-biasing to the driving device by a voltage drop occurring across the power distributing circuit.

32. The capacitive-load driving circuit as claimed in claim 29, further comprising a switch device inserted between the power distributing circuit and the driving power supply source or the reference potential point, and

the switch being caused to conduct after the driving devices have been switched into a conducting state.

5       33. A capacitive-load driving circuit including a configuration in which a driving power supply source is connected to an output terminal via a driving device, wherein the driving power supply source outputs a plurality of different voltage levels in a selective manner.

10       34. The capacitive-load driving circuit as claimed in claim 33, wherein the driving power supply source raises or lowers an output voltage in steps by switching the output voltage between the plurality of voltage levels within a drive voltage amplitude, while retaining ON/OFF states of the driving device.

15       35. A capacitive-load driving circuit for driving a capacitive load, connected to an output terminal, by a driving device, comprising a resistive impedance inserted in series to the output terminal.

20       36. The capacitive-load driving circuit as claimed in claim 35, wherein the resistive impedance provides an impedance whose value is not smaller than one-tenth of the value of a resistive component of the conducting impedance of at least one of the driving devices.

25       37. The capacitive-load driving circuit as claimed in claim 35, wherein the resistive impedance is a distributed resistor showing a resistance value not smaller than three-tenths of the value of a resistive component of the conducting impedance of at least one of the driving devices.

30       38. The capacitive-load driving circuit as claimed in claim 35, further comprising:

          a driving power supply source connected to the output terminal via the driving device; and

35       a power distributing circuit inserted between the driving power supply source and the driving device.

39. The capacitive-load driving circuit as claimed

in claim 35, further comprising:

a reference potential point connected to the output terminal via the driving device; and

5 a power distributing circuit inserted between the reference potential point and the driving device.

40. The capacitive-load driving circuit as claimed in claim 35, further comprising a plurality of driving devices, for driving a plurality of capacitive loads, 10 formed in integrated-circuit form, wherein each of the driving devices is connected to a driving power supply source or a reference potential point via a power distributing circuit.

41. A plasma display apparatus having an electrode 15 driving circuit using a capacitive-load driving circuit, wherein the capacitive-load driving circuit including a configuration in which a driving power supply source is connected to an output terminal via a driving device, and comprising a power distributing circuit inserted between 20 the driving power supply source and the driving device.

42. The plasma display apparatus as claimed in claim 41, wherein the capacitive-load driving circuit is used as a driving circuit for driving address electrodes.

43. The plasma display apparatus as claimed in 25 claim 42, wherein:

the plasma display apparatus is a three-electrode surface-discharge AC plasma display apparatus in which the address electrodes are formed on a first substrate and X and Y electrodes are formed on a second 30 substrate; and

thickness of a conductive layer of each of the address electrodes is reduced to one half or less of the thickness of a conductive layer formed from the same material as the conductive layer of each of the X and Y 35 electrodes.

44. The plasma display apparatus as claimed in claim 42, wherein:

the plasma display apparatus is a three-electrode surface-discharge AC plasma display apparatus in which the address electrodes are formed on a first substrate and X and Y electrodes are formed on a second substrate; and

each of the address electrodes is formed from a plurality of conductive metal layers, and an arbitrary one of the conductive metal layers is omitted.

45. A plasma display apparatus having an electrode driving circuit using a capacitive-load driving circuit, wherein the capacitive-load driving circuit including a configuration in which a reference potential point is connected to an output terminal via a driving device, and comprising a power distributing circuit inserted between the reference potential point and the driving device.

46. The plasma display apparatus as claimed in claim 45, wherein the capacitive-load driving circuit is used as a driving circuit for driving address electrodes.

47. The plasma display apparatus as claimed in claim 46, wherein:

the plasma display apparatus is a three-electrode surface-discharge AC plasma display apparatus in which the address electrodes are formed on a first substrate and X and Y electrodes are formed on a second substrate; and

thickness of a conductive layer of each of the address electrodes is reduced to one half or less of the thickness of a conductive layer formed from the same material as the conductive layer of each of the X and Y electrodes.

48. The plasma display apparatus as claimed in claim 46, wherein:

the plasma display apparatus is a three-electrode surface-discharge AC plasma display apparatus in which the address electrodes are formed on a first substrate and X and Y electrodes are formed on a second substrate; and

each of the address electrodes is formed from a plurality of conductive metal layers, and an arbitrary one of the conductive metal layers is omitted.

49. A plasma display apparatus having an electrode driving circuit using a capacitive-load driving circuit, wherein the capacitive-load driving circuit including a configuration in which a plurality of driving devices for driving a plurality of capacitive loads are formed in integrated-circuit form, wherein each of the driving devices is connected to a driving power supply source or a reference potential point via a power distributing circuit.

50. The plasma display apparatus as claimed in claim 49, wherein the capacitive-load driving circuit is used as a driving circuit for driving address electrodes.

51. The plasma display apparatus as claimed in claim 50, wherein:

the plasma display apparatus is a three-electrode surface-discharge AC plasma display apparatus in which the address electrodes are formed on a first substrate and X and Y electrodes are formed on a second substrate; and

thickness of a conductive layer of each of the address electrodes is reduced to one half or less of the thickness of a conductive layer formed from the same material as the conductive layer of each of the X and Y electrodes.

52. The plasma display apparatus as claimed in claim 50, wherein:

the plasma display apparatus is a three-electrode surface-discharge AC plasma display apparatus in which the address electrodes are formed on a first substrate and X and Y electrodes are formed on a second substrate; and

each of the address electrodes is formed from a plurality of conductive metal layers, and an arbitrary one of the conductive metal layers is omitted.



53. A plasma display apparatus having an electrode driving circuit using a capacitive-load driving circuit, wherein the capacitive-load driving circuit including a configuration in which a driving power supply source is connected to an output terminal via a driving device, wherein the driving power supply source outputs a plurality of different voltage levels in a selective manner.

54. The plasma display apparatus as claimed in claim 53, wherein the capacitive-load driving circuit is used as a driving circuit for driving address electrodes.

55. The plasma display apparatus as claimed in claim 54, wherein:

the plasma display apparatus is a three-electrode surface-discharge AC plasma display apparatus in which the address electrodes are formed on a first substrate and X and Y electrodes are formed on a second substrate; and

thickness of a conductive layer of each of the address electrodes is reduced to one half or less of the thickness of a conductive layer formed from the same material as the conductive layer of each of the X and Y electrodes.

56. The plasma display apparatus as claimed in claim 54, wherein:

the plasma display apparatus is a three-electrode surface-discharge AC plasma display apparatus in which the address electrodes are formed on a first substrate and X and Y electrodes are formed on a second substrate; and

each of the address electrodes is formed from a plurality of conductive metal layers, and an arbitrary one of the conductive metal layers is omitted.

57. A plasma display apparatus having an electrode driving circuit using a capacitive-load driving circuit for driving a capacitive load, connected to an output terminal, by a driving device, wherein the capacitive-

load driving circuit comprises a resistive impedance inserted in series to the output terminal.

58. The plasma display apparatus as claimed in claim 57, wherein the capacitive-load driving circuit is used as a driving circuit for driving address electrodes.

59. The plasma display apparatus as claimed in claim 58, wherein:

the plasma display apparatus is a three-electrode surface-discharge AC plasma display apparatus in which the address electrodes are formed on a first substrate and X and Y electrodes are formed on a second substrate; and

thickness of a conductive layer of each of the address electrodes is reduced to one half or less of the thickness of a conductive layer formed from the same material as the conductive layer of each of the X and Y electrodes.

60. The plasma display apparatus as claimed in claim 58, wherein:

the plasma display apparatus is a three-electrode surface-discharge AC plasma display apparatus in which the address electrodes are formed on a first substrate and X and Y electrodes are formed on a second substrate; and

each of the address electrodes is formed from a plurality of conductive metal layers, and an arbitrary one of the conductive metal layers is omitted.

61. An inductance-load driving circuit for driving an inductive load, connected to an output terminal, by a driving device, wherein a resistive impedance is inserted in series to the output terminal.

62. The inductive-load driving circuit as claimed in claim 61, wherein the resistive impedance provides an impedance whose value is not smaller than one-tenth of the value of a resistive component of the conducting impedance of at least one of the driving devices.